CLAIMS

What is claimed is:

1. A collaborative Web research method, comprising:

organizing a plurality of documents in a N-dimensional space

5 according to a collection of subject words; and

based on said organizing, retrieving, by a user, said documents

organized in said N-dimensional space according to said collection of subject

words.

2. The method according to claim 1, further comprising:

10 detecting that a researcher is retrieving documents which are

considered related according to a distance function.

3. The method according to claim 1, further comprising:

enabling said user to find other researchers which are researching in a

same research area.

15 4. The method according to claim 2, further comprising:

enabling said user to find said researcher which is researching in a

same research area.

5. The method according to claim 2, wherein said distance function is expressed as an equation:

$$S(P1, P2) = D(P1, P2) - T(P1, P2)$$

where S is a non-Euclidean distance of two points p1 and p2 in hyperspace,

5   and D is a Euclidean distance between the point p1 and the point p2, given by

$$D(P1, P2) = \sqrt{S_D (P1_D - P2_D)^2}$$

wherein T is a Trail estimate between the point p1 and the point p2,

wherein the estimate S is used in a collaborative Web portal to estimate a closeness between first and second users.

10   6. A Web-based collaborative research method, comprising:

determining coordinates for pages which are retrieved by a first user and mapping the coordinates into a space; and

based on said coordinates of said pages, informing a second user of a closeness of a research by said first user.

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7. The method of claim 6, wherein said informing is performed automatically by a server, said first and second users being informed of pages retrieved by one another.

8. The method of claim 6, wherein an intersection of research by said first and second users is graphically displayed to said first and second users.

9. The method of claim 1, further comprising:

    providing the first user with a trail of research of said second user.

10. The method of claim 9, wherein said trail of research comprises a predetermined sequence of bookmarks leading said first user to a specific point in cyberspace.

11. The method of claim 1, wherein, on a user side, said method further comprises:

    logging-in to a collaborative research portal; and

    selecting an existing research session, or creating a new research session.

12. The method of claim 11, wherein, on said user side, said method further comprises:

    retrieving a first data block;

    receiving data blocks of other users having a predetermined closeness; and

    receiving an index of other data blocks relevant to the user's research.

13. The method of claim 12, wherein, on a server side, said method further comprises:

    after the logging-in by the user, sending to the user a list of previously created research sessions; and

5   after the retrieving by the user, adding spatial coordinates of the first data block to a collection of vertices to a current research session.

14. The method of claim 13, wherein, on said server side, said method further comprises:

    recalculating areas occupied by the vertices of the current research

10 session; and

    calculating an intersection of the current research session with research sessions created by other users.

15. The method of claim 14, wherein, on said server side, said method further comprises:

15   determining whether any research sessions intersect; and

    if any research sessions intersect, then notifying users that created the intersecting sessions.

16. The method of claim 15, wherein, on said server side, said method further comprises:

20   sending the users of the intersecting sessions a geometry of the other intersecting sessions.

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17. A method of collaborative network searching, comprising:

tracking a plurality of users' accessing of pages in a network; and

based on a closeness of at least first and second users, notifying said

first and second users of one another's accessing of said pages.

5   18. A collaborative Web portal, comprising:

a tracker for tracking a user's bookmarks in accessing pages in a

network, and for tracking preferences of said user;

a unit for determining a closeness in research between users; and

a notifier for notifying, based on said closeness, at least one other user

10   of said user's bookmarks, said at least one other user having a similar interest

to that of said user based on a distance function.

19. The portal according to claim 18, further comprising:

a detector for detecting that a researcher is retrieving documents which

are considered related according to a distance function.

15   20. The portal according to claim 18, further comprising:

means for enabling said user to find other researchers which are

researching in a same research area.

21. The portal according to claim 20, further comprising:

means for enabling said user to find said researcher which is

researching in a same research area.

22. The portal according to claim 19, wherein said distance function is

expressed as an equation:

$$S(P1, P2) = D(P1, P2) - T(P1, P2)$$

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where S is a non-Euclidean distance of two points p1 and p2 in hyperspace,

and D is a Euclidean distance between the point p1 and the point p2, given by

$$D(P1, P2) = \sqrt{S_D (P1_D - P2_D)^2}$$

wherein T is a Trail estimate between the point p1 and the point p2,

10   wherein the estimate S is used in a collaborative Web portal to

estimate a closeness between first and second users.

23. A Web-based collaborative research system, comprising:

        a unit for determining coordinates for pages which are retrieved by a

first user and mapping the coordinates into a space; and

15   a notifier for informing, based on said coordinates of said pages, a

second user of a closeness of a research by said first user.

24. The system of claim 23, wherein said notifier resides in a server, said first and second users being informed of pages retrieved by one another.

25. The system of claim 23, further comprising:

a display for graphically displaying to said first and second users an

5   intersection of research by said first and second users.

26. The system of claim 23, further comprising:

a unit for providing the first user with a trail of research of said second user.

27. The system of claim 26, wherein said trail of research comprises a

10   predetermined sequence of bookmarks leading said first user to a specific

point in cyberspace.

28. The system of claim 23, wherein, on a user side, said system further comprises:

a log-in unit for enabling said user to log-in to a collaborative research

15   portal; and

a selector for selecting an existing research session, or creating a new

research session.

29. The system of claim 28, wherein, on said user side, said system further comprises:

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a retrieval unit for retrieving a first data block;

a receiving unit for receiving data blocks of other users having a predetermined closeness, and an index of other data blocks relevant to the user's research.

5   30. The system of claim 29, wherein, on a server side, said system further comprises:

a transmission unit for sending to the user a list of previously created research sessions; and

after the retrieving by the user, an adder for adding spatial coordinates

10   of the first data block to a collection of vertices to a current research session.

31. The system of claim 30, wherein, on said server side, said system further comprises:

a calculator for recalculating areas occupied by the vertices of the current research session, and for calculating an intersection of the current

15   research session with research sessions created by other users.

32. The system of claim 31, wherein, on said server side, said system further comprises:

a determining unit for determining whether any research sessions intersect; and

20   a notifier for notifying, if any research sessions intersect, users that created the intersecting sessions.

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33. The system of claim 32, wherein, on said server side, said system further comprises:

means for sending unit for sending the users of the intersecting sessions a geometry of the other intersecting sessions.

5 34. A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a method of collaborative Web research, said method comprising:

organizing a plurality of documents a N-dimensional space according to a collection of subject words; and

10 based on said organizing, retrieving said documents organized in said N-dimensional space according to said collection of subject words.

35. A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a

15 method of collaborative network searching, comprising:

tracking a plurality of users' accessing of pages in a network; and

based on a closeness of at least first and second users, notifying said first and second users of one another's accessing of said pages.

36. A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a

20 Web-based collaborative research method, comprising:

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determining coordinates for pages which are retrieved by a first user and mapping the coordinates into a space; and

based on said coordinates of said pages, informing a second user of a closeness of a research by said first user.

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